## REMARKS

Applicants appreciate the thorough examination of the present application that is reflected in the Official Action of June 16, 2006. In response, the claims have been amended to further clarify the patentable distinctions over the cited art, and many of the dependent claims have been canceled to eliminate any issues of obviousness type double patenting. Accordingly, Applicants respectfully request reconsideration of the present application and allowance of the present application for the reasons that will now be described.

A Sixth Supplemental Information Disclosure Statement is being filed concurrently.

**The Double Patenting Rejection Has Been Overcome**

Claims 41-75 were provisionally rejected on the ground of non-statutory obviousness type double patenting over Claims 48-63 of copending Application Serial No. 10/661,917. It would be relatively easy to file a Terminal Disclaimer and overcome this rejection. However, Applicants note that Claims 48-63 of copending Application Serial No. 10/661,917 have already been canceled in an Amendment that was filed on June 23, 2006. Moreover, in the present Amendment, any claims related to negative photoresist (Claims 63-64 and 75) and any claims related to sandwiched layers on the substrate (Claims 62 and 66) have been canceled, to avoid any other question of double patenting. Finally, Applicants respectfully submit that the fact that the present application recites a developing station in one of the dependent claims is immaterial to the question of double patenting. For at least these reasons, the claims of the present application are patentably distinct from the claims of copending patent Application Serial No. 10/661,917. Applicants, therefore, request withdrawal of the double patenting rejection.

**Independent Claims 41 and 67 Are Patentable Over U.S. Patent 5,347,375 to Saito et al.**

Independent Claim 41 recites:

> 41. A system for fabricating optical microstructures comprising:
>
> a cylindrical platform that is configured to hold a radiation sensitive layer thereon;

> a radiation beam system that is configured to impinge a radiation beam upon the radiation sensitive layer on the cylindrical platform; and
>
> a controller that is configured to rotate the cylindrical platform about an axis thereof while simultaneously axially rastering the radiation beam across a portion of the radiation sensitive layer and to simultaneously continuously translate the cylindrical platform and/or radiation beam axially relative to one another, to image the optical microstructures in a spiral pattern in the radiation sensitive layer.

Thus, independent Claim 41 recites that three actions occur simultaneously, to image optical microstructure in the radiation sensitive layer:

(1) the cylindrical platform is rotated about an axis thereof;

(2) the radiation beam is axially rastered across a portion of the radiation sensitive layer ("sub-rastering"); and

(3) the cylindrical platform and/or radiation beam are continuously translated axially relative to one another.

By virtue of these three simultaneous actions, the optical microstructures are imaged in a spiral pattern in the radiation sensitive layer as shown, for example, in Figure 2 of the present application.

In sharp contrast, Saito et al. describes a computer-generated hologram recording apparatus that includes a rotary drum structure and a movable recording head section comprising three semiconductor layers, as shown at Figure 11. However, as noted at Saito et al. Column 13, lines 16-30:

> The scan printer **40** contains a movable recording head section **232** which has three recording light sources **234*a***, **234*b***, **234*c*** arranged at a regular interval. The recording head 232 is mechanically coupled to a threaded rotation rod **236**. The rod **236** is rotated by a rotary motor **238** so as to move the recording head **232** in the right and left directions along the direction Y (sub-scanning direction). The recording light sources **234** are preferably light emitting elements which can stably and continuously emit light being matched in spectroscopic sensitivity with the recording medium **44**; typically, they may be a semiconductor laser. The emitted light from each of the light sources **234** is converged into a beam focused on a small spot on the surface of the rotating drum by a corresponding one of lenses **240**. (Emphasis added.)

Accordingly, although Saito et al. may describe rotating a cylindrical platform, there is no description of the combination of simultaneously sub-rastering the radiation beam across a portion of the radiation layer, and simultaneously continuously translating the

cylindrical platform and/or the radiation beam axially relative to one another, as recited in amended Claim 41. Stated succinctly, the lasers of Saito et al. Figure 11 appear to translate, but they do not appear to axially sub-raster across a portion of the radiation sensitive layer and there does not appear to be any description or suggestion in Figure 11 or in the accompanying description thereof to add sub-rastering. Accordingly, Claim 41 is patentable over Saito et al. for at least these reasons.

Claim 67 is patentable for at least the same reasons that were described above in connection with Claim 41. This analysis will not be repeated for the sake of brevity.

Applicants also wish to note that the rejection does not appear to have considered the recitations of the last paragraph of Claims 41 and 67 regarding the controller, with the Official Action stating that the recitations of these claims relate to "intended use for the claimed controller". Applicants wish to state for the record that the "configured to" language is intended to recite more than a mere statement of intended use. Rather, in order for the controller to control the cylindrical platform, the radiation beam system and the radiation beam to provide the three simultaneous actions that are recited in Claims 41 and 67, the controller needs to be configured so as to provide these three degrees of simultaneous control. In contrast, Saito et al.'s controller is configured to merely control the rotation of the drum and the linear motion of the lasers, as noted in the above-quoted passage of Saito et al. and at Saito et al. Column 12, line 67-Column 13, line 3:

> As shown in FIG. **11**, the multi-beam scan printer **40** includes a rotary drum structure **220** which permits the sheet-like recording medium **44** of FIG. **1** to be set in contact with the peripheral surface thereof.

Accordingly, there is no description or suggestion that Saito et al.'s controller can be configured to provide any other elements of control, nor is the disclosure of Saito et al. sufficient to establish such a rejection based on inherency. In particular, as noted in MPEP §2112(IV):

> The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic.... "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient'". (Citations omitted.)

Accordingly, the configuration of a controller according to Claims 41 and 67 is neither anticipated by Saito et al. nor inherent in Saito et al. It would also not be obvious to provide this additional degree of control. Accordingly, for at least these reasons, independent Claims 41 and 67 are patentable over Saito et al.

**Independent Claims 41 and 67 Are Patentable Over U.S. Patent 6,045,980 to Edelkind et al.**

As was noted above, Claim 41 recites a combination of three simultaneous elements of control. In sharp contrast, Edelkind et al. describes systems for mastering compact discs on a cylindrical platform using Cartesian coordinates. Figure 3 and the accompanying text shows stepwise rotation of the drum and mechanical scanning of the lasers. See Edelkind et al., Column 7, lines 43-49:

> To accomplish this rasterizing, the focusing system **317** travels the length of the ultra-precision linear stage **308**, the cylinder **211** is rotated slightly about its axis of rotation by ultra-precision rotation stage **305**, and then this cycle repeats. Thus, the data is encoded according to an embodiment of the present invention in the rasterized manner depicted by reference numeral **212** of FIG. 2A.

Thus, stepwise rotation followed by scanning of the laser system are described. This action may be analogized to the action of an old-fashioned typewriter. The combination of rotation, simultaneous axial sub-rastering of the radiation beam across a portion of the radiation sensitive layer and simultaneous continuous translation of the cylindrical platform and/or radiation beam axially relatively to one another is not described or suggested. Nor would this combination of three control elements be inherent for at least the same reasons that were described above in connection with the rejection based on Saito et al.

For at least these reasons, independent Claim 41 is patentable over Edelkind et al. Remaining independent Claim 67 is patentable for at least the same reasons. This analysis will not be repeated for the sake of brevity.

**Many of the Dependent Claims Are Separately Patentable**

The dependent claims are patentable at least per the patentability of the independent claims from which they depend. Moreover, many of the dependent claims are separately patentable. For example, Claim 50 recites:

> 50. A system according to Claim 41 wherein the controller is configured to rotate the cylindrical platform while simultaneously axially rastering the radiation beam at sufficient speed, relative to rotating, such that the radiation beam images an optical microstructure over a plurality of scans of the radiation beam.

This high speed control, such that the radiation beam images an optical microstructure over a plurality of scans of the radiation beam is illustrated, for example, in Figures 5A-5C and 6A-6C of the present application, and does not appear to be described or suggested by either of the cited references. Similar analysis applies to dependent Claim 68.

Claims 51 and 52 recite an auto focus system that is configured to vary a focal length of the radiation beam to at least partially compensate for radial variation in the cylindrical platform and/or thickness variation in the radiation sensitive layer (Claim 51) or to image portions of the optical microstructures at varying depths in the radiation sensitive layer (Claim 52). This control of focal length by an auto focus system is not described or suggested by either of these references.

Finally, Claim 60 recites that the optical microstructures comprise microlenses. In contrast, Saito et al. relates to the fabrication of computer-generated holograms and Edelkind et al. relates to the mastering of compact discs. The fabrication of microlenses is not described or suggested by either of these references. In rejecting Claim 60, the Official Action states at the bottom of Page 4:

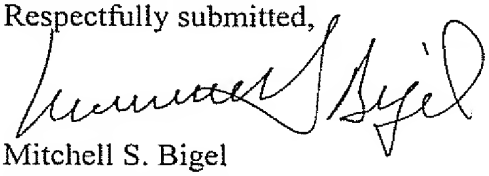
> Furthermore, it is the position of the Examiner that the language "wherein the optical microstructures comprise microlenses" set forth in claims 60 and 73 describe the product intended to be produced (i.e. the intended use) of the present claimed system. The microlenses are not part of the system.

However, Applicants respectfully submit that the microstructures clearly are a part of the system, because, as recited in Claim 41, the controller is configured to "image the optical microstructures in a spiral pattern in the radiation sensitive layer". Thus, according to Claim 60, an image of the microlenses is formed in the radiation sensitive layer, as controlled by the controller. Thus, microlenses are more than an intended use of the present system. Similar analysis applies to Claim 73.

**Conclusion**

The claims have been amended to eliminate any issues of obviousness type double patenting, and have also been amended to clarify the patentable distinctions over the cited references. Accordingly, in view of the analysis presented above, Applicants respectfully request withdrawal of the outstanding rejections and allowance of the present application.

Respectfully submitted,



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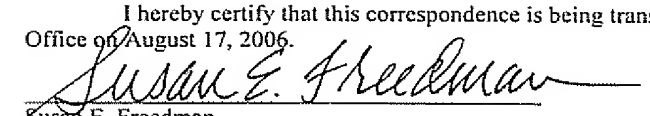

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Date of Signature: August 17, 2006